DOCUMENT RESUME

ED 170 372 TM 008 967

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TITLE Exploration Validity in Interest Measurement.
PUB DATE Apr 79
NOTE 19p.; Paper presented at the Annual Meeting of the American Educational Research Association (63rd, San Francisco, California, April 8-12, 1979)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS Career Exploration; *Career Opportunities; Equal Opportunities (Jobs); Females; *Interest Tests; Intervention; *Sex Fairness; Sex Role; *Test Interpretation; *Test Validity; Vocational Counseling; *Vocational Interests; Working Women

ABSTRACT

This overview of women in the work force indicates the need for increased attention to the career development of women and their attainment of equal status in the world of occupations and work. Continuing occupational segregation and salary differentials, sociological analysis of the male bias in occupational status analyses, psychological evidence on barriers for women, and limited relationships between expressed and inventoried interest, all argue for a focus on exploration validity rather than predictive validity for interest inventories. Further, this focus views interest inventories as part of an intervention (treatment), and suggests additional criteria for studies of the effects of interventions. Recent studies of effects and the criteria used in them are reviewed. Additional criteria are needed to provide for the articulation of educational, occupational, marriage, parenthood and homemaker roles. (Author/MH)

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Exploration Validity in Interest Measurement

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ED170372

Abstract

A recent overview of women in the work force provides data that require the increased attention of those concerned with the career development of women and their attainment of equal status in the world of occupations and work. Continuing occupational segregation and earnings differentials, sociological analysis of the male bias in occupational status analyses, psychological evidence on barriers for women, and limited relationships between expressed and inventoried interests, all argue for a focus on exploration validity rather than predictive validity for interest inventories. Further, this focus views interest inventories as part of an intervention (treatment), and suggests additional criteria for studies of the effects of interventions. Recent studies of effects and the criteria used in them are reviewed. Additional criteria to provide for the articulation of educational, occupational, marriage, parenthood and homemaker roles are recommended.

TM008 967

Exploration Validity in Interest Measurement[1]

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Introduction

A recent overview of women in the work force provides data that require the increasing attention of educators and psychologists concerned with the career development of women and their attainment of equal status in the world of occupations and work (National Commission on Workin; Women, 1979). As of 1977, 56 percent of women 16 years of age and over worke i all or part of the year. This comprises 42 percent of the U.S. work force, 42.1 million women. Of women in the work force as of March 1978, nearly 80 percent were in clerical, sales, service, factory or plant jobs. Women were divided into the following occupational categories: professional-technical, 16.1%; managerial-administrative, 6.3%; sales, 6.8%; clerical, 34.7%; craft, 1.7%; operative 11.2%; non-farm laborer, 1.6%; service, including private household, 20.5%; and farm laborer, 1.1%. The well-known concentrations of women within professional jobs were documented again; 60% of the women in professional jobs are non-college teachers or nurses, while men tend to be lawyers, doctors, or college professors. Within occupational category the wages of men and women vary considerably. For every dollar earned by a man, a woman in the same job category earns significantly less. As of May 1977, the wage gap in sales, for example, was $.45 compared to $1.00 and in clerical $.64 compared to $1.00 for men.

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[1]Paper presented at the annual meeting of the American Educational Research Association, San Francisco, April 1979.

In 1977 full time women workers had a median income of $8,814, while men's income averaged $15,070. Women of Spanish origin had the lowest income of any racial/ethnic group; their income was less than half of white male's. During the last 25 years, women's earnings as a percent of men's have dropped steadily. In 1955, full time women workers earned $.64 to men's $1.00. By 1960 this figure had dropped to $.61. Ten years later in 1970, women's earnings were calculated to be 59.4¢ per men's $1.00. In 1977 the figure was 58.9¢ compared to men's $1.00.

This is the familiar litany of facts and figures on the relationship between men's and women's participation and earnings in the labor force. Occupational segregation as well as earnings differentials have not changed and in some instances have worsened. These data provide the strongest case for reexamining the criteria used to validate interest inventories and counseling interventions and to reconceptualize the purposes to be served by an interest inventory. Vocationally-limited criteria, whether for predictive validity or what we can now call exploration validity, are likely to be of limited use in changing these data on women in the work force. A number of psychologists have presented analyses of barriers to equal opportunity and equal participation of women in occupations and earnings. In relation to career decision-making, Eyde (1970), Farmer (1976), and DiSabatino (1976) have described such barriers as fear of failure, low self-esteem and sex role conflicts. They have also suggested that counselors and counseling activities are essential to eliminating these barriers that women face. However, the use of counselors, materials, or activities in guidance should not occur without active evaluation of their effects.

Gottfredson and Holland (1978) called attention to the multiple purposes that interest inventories can serve: they can provide reassurance to people

who are unsure about their career goals; they can provide a structure that people can use in thinking about themselves and their careers; they can serve as career development diagnostic tools; they can promote exploration of a wide range of career alternatives; and they can focus exploration by suggesting a group of occupations that appear related to a person's interests. (These multiple purposes are similar to the goals of counseling and counseling activities, as well.) Gottfredson (1978) has called attention also to evaluating vocational interventions. As he notes, there is an increasing effort to assess the effects of tests, counseling, and other treatments on clients. This is evaluation research, and the standard concept of predictive validity of interest inventories has little relationship to the analysis of objectives and criterion variables that is needed to develop effective studies of vocational interventions, of which interest inventories are but one example.

Diamond (1978) has stated this dilemma very well in a recent paper, "Prediction, stability, and social change: A three-horned dilemma." In a time of change, or in this case a time of lack of change in the statistics on occupational segregation and earnings differentials, we need to reexamine the purpose of any psychological measurement, and develop new models for evaluating or validating its use.

Sociological analyses of women's marital and family status in relation to their work histories provide further impetus for examining criteria of effectiveness. Falk and Cosby (1978) have reviewed research on occupational choice and status attainment. They note, as have others, that the research both within sociology and psychology has been formulated with the development of occupational choice of men as a point of reference. Female-peculiar aspects of the process have not been treated explicitly, and they argue that the theories are

applied as an afterthought to women (as have others, e.g., Vetter, 1976). Falk and Cosby call attention to the differences in the way women perceive an occupation, mobility, the larger number of career patterns in terms of entry and exit from the work force, and the conflicts in roles experienced by women. They are extending the earlier perspective on the occupational choice of women provided by Psathas (1968) and Zytowski (1969) who focused on age of entry into the labor force, marital plans, and span of participation. Falk and Cosby provided a typology of women's possible marital/familial statuses and work options. These analyses of statuses included such categories as, never married--without children, never married--with children, married--without children, married--with children, and so on. Within the children categories they have subgroups such as children are preschool at home, children are preschool in day care, children are in school, and children have left home. These analyses suggest one dimension of evaluation studies, in terms of careful descriptions of the status of women participating in the intervention activities. (I am using intervention in the sense here of a treatment, whether it is the use of an interest inventory, counseling, or combinations of such activities.)

From another perspective, Borgen and Seling (1978) and Slaney (1978) have noted the limitations of interest inventories in terms of their relationships to expressed interests, both in a predictive and concurrent study of these relationships. Their study suggests that to argue for the use of interest inventories at all, it will be necessary to provide a better substantiation of the effects of interventions as part of a treatment. The attempts to define sex fairness in interest inventories over the last five years or so have also argued for increased emphasis on what has been called exploration validity.

The next section provides a brief summary of recent studies on the effects of interest inventories and the main criteria that have been used in the effect studies. An expanded definition of exploration and career decision-making for women is then considered, made necessary by the data on occupational segregation and work patterns of females and males. Additional criteria are suggested for effect studies of the use of interest inventories with women. And finally, a consideration of the expanded criteria needed for effect studies of career exploration lead to the recommendation to expand the materials and interpretive services provided with interest inventories.

Recent Studies of Effects

There have been a series of studies examining the effects of the Self-Directed Search (SDS), with the early studies summarized by Holland (1975). More recent studies have included those by Cooper (1976), Holland, Takai, Gottfredson, and Hannau (1978), and Takai and Holland (1978). The Holland *et al* study (1978) includes many of the criteria of earlier studies. For a sample of high school girls, pre-treatment measures included a free response item about current vocational aspirations and a satisfaction with vocational choice item. Post treatment questionnaires repeated the items about vocational aspirations and satisfactions with choice. Vocational aspirations were scored in two ways: the total number of occupations listed, and variety of occupations listed (or the number of different occupational categories according to their first letter code in Holland's classification). A Satisfaction Scale had 22 statements about the SDS and teaching booklets used in the study. There was also a Knowledge of Typology Scale to assess what a student had learned from the SDS and a final section about vocationally related activities a student had engaged in, for example, talking to a vocational counselor,

reading information about a job, or talking with an employed person. This section was scored for both the number and variety of activities engaged in, although only the variety of information seeking scale was used as a criterion. A multivariate analysis of variance yielded no significant treatment effects, although some significant f's appeared for univariate analyses. One problem was that the mean level of satisfaction expressed by the sample was very high (4.92 on a 1 to 6 scale) with little variance, therefore. The lack of a comparison group was a limitation to the study.

These findings, unfortunately, are not atypical, although earlier studies had shown that after taking the SDS students obtained more options and engaged in more information-seeking. Holland et al summarized the findings as indicating that inventories themselves have relatively small effects when mean differences on various criteria are used. Also, inventories in different forms or with different score procedures seem to have similar effects on consumers and to be about as influential as counselors. As Holland notes, these data probably mask complexity and subgroups in the population. Although helpfulness of SDS and of counselors are rated similarly, they probably are helpful to different subsamples.

Cooper's study used similar criteria in terms of the number and type of career options considered, frequency and variety of information-seeking behaviors, career salience, and satisfaction with the career exploration experience (all self-report variables, with the exception of the vocational information-seeking behavior which was defined as the number of subjects who returned to the counseling center after treatment at a prearranged time to pick up relevant occupational information). Cooper also examined the proportion of non-traditional occupations for the treatment and control groups. The career salience variable was measured by the Life Style Index (LSI) developed by

Angrist, and consisted of eleven multiple choice items to measure the respondent's motivation to work under specific family conditions, adult role aspirations, and preferred adult role alternatives. Of particular interest are the effects of the different methods, with the treatment groups exposed to Auxiliary Informative Material (AIM) causing a change on a life style index. AIM was an exercise which included a brief survey of myths and realities of women and men in the world of work designed to increase subjects' awareness of the importance of their eventual occupational choice, and included a series of true-false statements about women workers. Cooper predicted that if the AIM were presented to respondents prior to the use of the SCII or the VCS (the Vocational Card Sort) the interest measurement methods would have a greater impact on broadening options, stimulating information-seeking behavior, and increasing career salience. To date, Cooper's is the only study reported which attempted to include treatment materials specific to women, in conjunction with an interest inventory as part of a treatment.

Zytowski (1977) examined the effects of receiving the results of the Kuder Occupational Interest Survey (KOIS) on several aspects of vocational behavior among high school students. A questionnaire was constructed measuring the certainty of and satisfaction with expressed occupational choice using Thurstone-style items. Respondent's self-knowledge was assessed by rank ordering occupations according to the way respondents expected they would score for the pretest form and for the way they did for the posttest. The lists were correlated with the actual ranks of occupations on their own profiles. The pretest also included a Thurstone-type item to measure interest in obtaining the results of their interest inventory. The posttest included a form to measure information-seeking behaviors and a measure of satisfaction with the

results of the inventory. The analyses examined female and male subjects separately according to the level of interest they expressed in learning of the results of the interest profiles. The analyses indicated no effects for gender, an increase in accuracy of self-estimates for the experimental over control group, and no effects observed for increase in certainty of or satisfaction with choice, nor information-seeking behavior.

Oliver (1977) evaluated career counseling outcomes for three modes of test interpretation. Of interest here are the summaries of research and the criteria used in the study. She listed additional criteria such as accuracy of self-knowledge, certainty of choice, and realism of choice. The criterion for realism of choice was ratings by judges. Certainty of choice was the client's self-ratings, and appropriateness of certainty used judges' ratings of realism. The certainty of career choice inventory asked the respondent to state a career choice and indicate on a vertical 5" line (from 0 - 100%) the degree of certainty of choice. (As Oliver notes, for some clients a decrease in certainty may be desirable if the client began with a highly certain but unrealistic choice. Studies using judges' criteria of realism must certainly be tempered by considerations of sex stereotyping of occupations.) An exploration criterion used in her study was frequency of career information seeking, a self-report of the number of times students consulted various sources of occupational information.

Holland and Holland (1977), in a study of vocational indecision, used a classification item similar to Zytowski's use of the client's interest in career inventory results. Students responded true or false to the statement, "I have made a tentative occupational choice" or "I am currently employed." Another measure of this was presented in a multiple choice format, "How satisfied are you with your present job or your choice of an occupation?" Responses included:

1. Well satisfied with choice; 2. Satisfied but have a few doubts; 3. Not sure; 4. Dissatisfied but intend to remain; 5. Very dissatisfied and intend to change; 6. Undecided about my future career. Such items would permit various classifications of students into groups for analyzing results, similar to Zytowski's procedures.

Takai and Holland (1978) used the Vocational Card Sort (VCS), the SDS, and an interpretive booklet in a study of the effectiveness of treatments for high school girls. In a sample of 241 high school girls, there were no significant differences between the effects of the VCS and the SDS on the variety of occupations' criterion and the SDS was more effective than the combination treatment, the VEIK. No significant differences were obtained on the satisfaction scale criterion. Other criteria examined but not used in the analysis were pre-post measures on the number of occupations considered, satisfaction with choice, and variety of information-seeking activities (self-reported). A no-treatment group was not included in the design.

A study by Prediger and McLure (1976) used an intervention with ninth and twelfth grade high school girls to try to encourage exploration of careers in science and technology. The interventions for ninth graders included a career interest inventory (ACT-VIP) and group discussions of career planning. The experimental group reported more career exploration activity (but not specific to science and technology). A self-report questionnaire asked students to show the frequency of activities for their first two job choices using items such as:

> Read a description of one of the jobs in the school library or guidance office job files.
>
> Discussed the jobs with a friend my age.
>
> Wrote for materials (Outside of school) describing one of the jobs or related educational programs.
>
> Visited a place of employment to see what one of the jobs was like. (Prediger and McClure, 1976)

A related study examining the effects of raw scores versus same-sex norm scores on the SDS was conducted by Keeling and Tuck (1978) on a sample of New Zealand high school students. The instrument used to measure the effects of the type of scores consisted of six job descriptions taken from the Dictionary of Occupational Titles. Three descriptions were congruent with an individual's raw score code first letter, and three were congruent with her or his standard score code first letter. After reading the description of each occupation students answered three questions: Do you think you would find the occupation very interesting? Would you like to obtain further information on this occupation? And, would you be surprised if the results of the guide indicated that you would be interested in this occupation? Responses were on a 5 point scale from "definitely yes" to "definitely no" and "definitely surprised" to "It's exactly the type of job I would expect," for the third question.

The expected shifts in codes occurred when the raw scores were changed to standard scores. Fifty-one percent of the boys changed from a first letter raw summary code of R; 88% of the girls changed from a raw score first letter of S. Of interest is the disordinal interaction between sex of subjects and type of code that was found in the analysis of variance. The disordinal action was, "A function of the girls reacting more strongly than the boys to the descriptions of the occupations; that is, they react more positively than boys to the occupations congruent with their raw score code and less positively than boys to the occupations congruent with their standard score code" (p. 269). It would be interesting to further analyze these results, but suffice it to note here that there is probably more involved than these authors have analyzed in the responses of girls to the shifts in the code. Sex role stereotypes of appropriate occupations may certainly contribute to these responses.

O'Neil, Price, and Tracey (1979) compared the responses of college men and women to completing the SDS, the SCII, or a combined testing treatment. The

criteria included the Career Interest Inventory Reaction Questionnaire, which had 15 questions about the testing experience. Factor analysis of the 15 questions resulted in four areas related to students' reactions to the testing experience: factor 1, items concerned with how the test stimulated subjects to think about career planning; factor 2, content concerned with subjects' personal reactions to the inventory; factor 3, concerned with whether the test had clear directions; and factor 4, certainty about career planning. A second instrument was the Career Behavior and Attitude Check List Questionnaire. This questionnaire assessed student attitudes and behaviors after the testing experience. The seventeen-item questionnaire was factor analyzed and yielded three factors related to career attitudes and behaviors of students one month later: factor 1, satisfaction with career planning process; factor 2, item content concerned with subjects' clarity and certainty about their career choices; and factor 3, item content concerned with the amount of time that subjects spent thinking about their career planning.

There were no significant sex effects on a multivariate analysis of variance and significant treatment effects were due to factors 1 and 3 (career stimulation and clarity of directions). Factor 1 showed a significant treatment effect for the SDS, and factor 3 for the SCII treatment group. Results for the follow-up questionnaire showed no significant differences for the MANOVA on any of the three factor scores. Over the four weeks, there were no different effects for any of the treatment groups. Again, the study was limited by lack of a control group to examine the effects on users and nonusers, and lacked an examination of restriction or expansion of career options.

Additional Criteria

The studies to date include some of the short-term criteria which should ultimately relate to the long range criteria of decreasing occupational segregation and earnings differentials for females and males. Super and Hall (1978) recently discussed the use of exploration in career development, pointing out that the concept of career development includes other roles as well as work. Exploration was defined by Super as consisting of querying, knowledge of resources for exploration, and participation in or use of resources. Behavioral criteria for exploration mentioned are both actual engagement in and continuation of exploratory activities that are self-initiated (e.g., observed use of library materials, discussion with other students). Outcomes of exploratory behavior may lead not to choice but to a decision to postpone choice and to explore further. There is a current tendency in research to hypothesize and to find an increase in the number of alternatives considered as a result of exploration in the early years of high school (Super & Hall, 1978, p. 341).

Super reviewed the research related to two dimensions of Jordaan's Schema of the dimensions of exploratory behavior: Fortuitous and random exploration; (do programs or interventions result in systematic or fortuitous and random exploration?); and Intended and other initiated exploration (does program/ intervention develop and encourage exploration in and out of the immediate environment?). Other dimensions of Jordaan's Schema include recognized or not recognized as exploration, self or environment oriented, contemporaneous or retrospective, motor or mental, intrinsic or extrinsic, behavior modifying or fruitless, and vocationally relevant or irrelevant. These dimensions need to be revised to include dimensions for type of role explored (e.g., vocational, marital, parent) and to be defined with examples to test the dimensions for

overlapping and clarity to other researchers. Some of the dimensions are reflected in the largely self-report criteria used in recent studies of the effects of career interest inventories. Further effort and refinement of criteria for exploration validity are needed. In particular, the non-traditional occupations considered (that is, non-traditional for both boys and girls) is a criterion of immediate concern in reducing sex restrictiveness of interest inventories.

If career exploration is considered a part of career decision-making, we can propose further criteria for sex equality in career decision-making. Definitions of equality can include considerations of equity in educational plans as well as occupational plans, levels of aspiration, and levels of work and career commitment for both sexes. For a complete definition of sex equality in career decision-making, we must remind ourselves of the incompleteness of career decision approaches based on a model of male career development and occupational status attainment, and of the psychological barriers faced by women in making career decisions. Women have traditionally been concerned with roles expressed primarily through the marriage relationship, parenthood, and homemaking. Men have been traditionally more concerned with roles in education and occupations. If we extend our criteria to consider the traditionally female roles in order to foster sex equity in career decision-making and in long range outcomes such as occupations and earnings, our criteria will be different. In addition to such criteria as the number of occupations explored and the number of non-traditional occupations explored, variables related to fertility and educational plans related to preferred occupations will be added. Other criteria would include the articulation of occupational, parenthood, and homemaking responsibilities. How do women and men plan to integrate these responsibilities? The consideration of plans in the area of work patterns, timing of marriage, number

and timing of children, as well as equity in the power relationships in the marital setting, are all required for sex equality in career exploration and career decision-making. Unless we seek to affect the variables related to women's traditional roles in marriage, parenthood, and homemaking, we cannot expect to see any interventions, whether interest inventories or counseling activities, to affect our ultimate criteria of occupational segregation and earning differentials.

Measures of level of satisfaction with inventories or counseling activities as they exist are unrealistic criteria when viewed in the light of barriers to educational, occupational, and earnings equity for women. Unfortunately, individuals participating in treatments would have to have already achieved the status of equity we are defining here in order to express dissatisfaction with inventories and counseling activities. Since we cannot provide pre-treatment courses in women's studies and consciousness raising sessions, we must change the criteria by which interventions are evaluated.

Concluding Remarks

A number of criteria which have been used in recent studies of the effects of interest inventory with females and males have been identified. With some exceptions, the recent studies have been focused on criteria of satisfaction and number of occupations considered. Our concern with the status of theories of career development and career decision-making in general argue for expanded criteria for exploration validity. These theories have been limited drastically by their development based on male occupational patterns and status attainment. It is well known that patterns for women do not fit those for men. Rather than assuming that the male pattern is that to which women should aspire, consideration of the full set of adult roles in the areas of education, work, parenthood,

marriage, and homemaking, may result in a different model of the process for both females and males.

The studies which are concerned with the effects of interest inventories, as well as counseling effects, provide a much needed focus on the status of interest inventories as treatments. This is in sharp contrast to viewing them as predictors of later occupational status. What has been described here as exploration validity for interest inventories provides an entre into the broader question of the adequacy of career decision-making and career theories in general. I have argued here that in order to change the ultimate criteria of occupational segregation and earnings differentials, the full set of adult roles needs to be considered as part of the set of criteria used to evaluate interventions, including those which use interest inventories. Criteria used in effects studies must not be narrowly restricted to the inventory itself, since barriers to women's full participation in all adult roles are influenced by other than occupational variables.

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